Operating Instructions

Indoor pan-tilt head

Model AW-PH350P
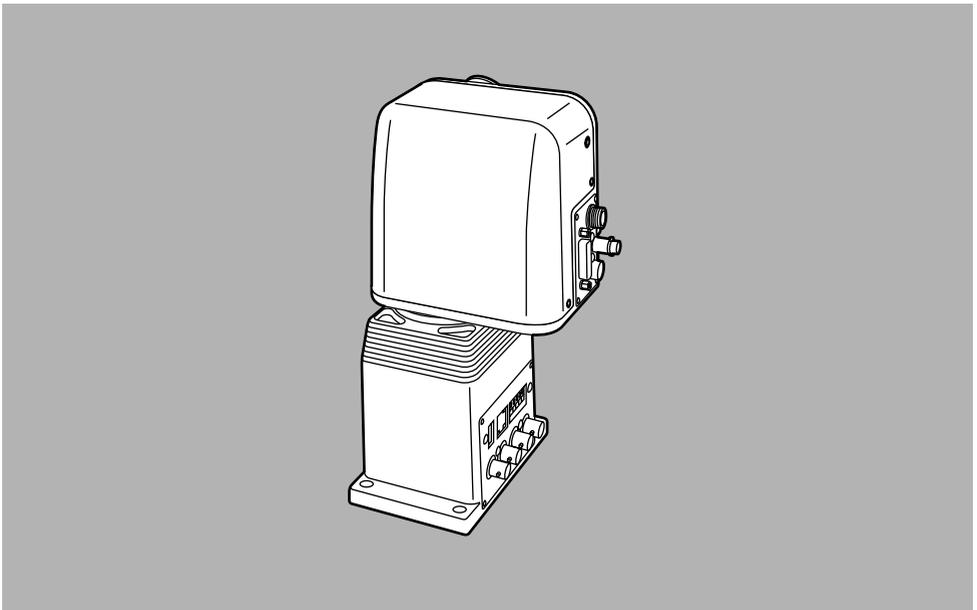
![Indoor pan-tilt head AW-PH350P]

Panasonic®

Before attempting to connect, operate or adjust this product, please read these instructions completely.

P

2

indicates safety information.

Contents

Introduction

● This is a compact stand-alone type of pan-tilt head which is capable of rotating 95 degrees upward and downward and 300 degrees on the horizontal.

● This pan-tilt head can bear a total weight of up to 8.8 lb (4 kg) for the camera and lens combined.

● The pan-tilt head can be controlled directly using the Multi-Function Controller (AW-RP605). Up to five pan-tilt heads can be connected to the Multi-Function Controller (AW-RP605).

● The pan-tilt head can be controlled from a PC, etc. by converting RS-232C to RS-422.

● The positions and settings for shooting up to 50 points can be entered as data into the preset memory.

Accessories

Please check the following accessories have been provided.

Tilting arm . . . .(×1)
Tilting arm fixing screws
   M4×12 mm . . . .(×4)
Safety chain . . . .(×1)

Chain attachment screws
(with flat and spring washers)
   M4×8 mm . . . .(×1)
   M4×6 mm . . . .(×1)
   M2.6×6 mm . . . .(×1)

Installation precautions

- Avoid using the pan-tilt head in kitchens or other places where there is excessive steam and oil fumes.
- Make sure that the installation of the pan-tilt head has been completed before mounting the camera onto it.
- This pan-tilt head has a maximum load capacity of 8.8 lb (4 kg).
  Do not use it for loads over 8.8 lb (4 kg).
- Do not use a lens that will cause the camera to be poorly balanced. Such a lens should not be used even if the load capacity is under 8.8 lb (4 kg).
- Do not install the pan-tilt head outdoors or in any place where the temperature is over 113°F (45°C) or below 14°F (–10°C).
  Further, it should be used where the ambient humidity is less than 90%.
- Screws for mounting the pan-tilt head are not provided with the stand and must therefore be purchased separately.
  They should be selected with due consideration given to the location where the pan-tilt head is to be mounted and its load capacity.
- To supply power to the pan-tilt head, use only the AC adapter (AW-PS300) designed for use with this pan-tilt head.
- When handling the pan-tilt head, be sure to hold it by the base.
  Do not lift the pan-tilt head by the head or tilting arm.
  Doing so may cause the unit to malfunction.
- Do not turn the head or tilting arm by hand.
  Doing so may cause the unit to malfunction.
- Dropping the pan-tilt head or subjecting it to a strong shock may cause malfunctioning or an accident.
- Install the pan-tilt head so that a clearance of at least one meter is left around the monitor.
- When mounting a camera onto the pan-tilt head, take due care to prevent the camera from slipping out of position or dropping.
- Install the pan-tilt head and set the limiters so as to ensure that none of the components mounted on the pan-tilt head or cables will make contact with any other objects in the vicinity when the pan-tilt head rotates.

Precautions for use

This pan-tilt head uses a manganese dioxide-lithium battery (CR2032).

Be absolutely sure to remove this battery when disposing of the pan-tilt head or printed circuit boards.

Be sure to dispose of any batteries removed according to the applicable regulations of the country concerned.

Do not dispose of this type of battery as household garbage.

For details on how to remove the battery, refer to the section on replacing the battery in "Replacement of consumable parts" (page 32).

Parts and their functions
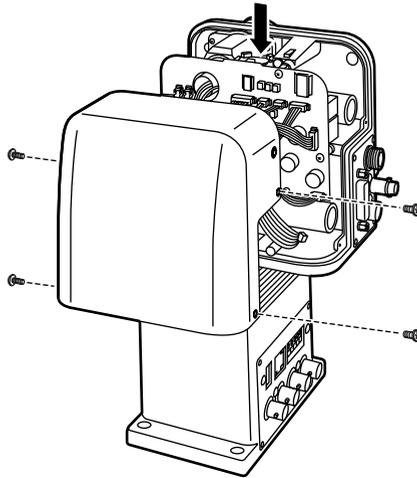
Parts and their functions

❶ Tilting arm
This tilts in the vertical direction.

❷ Tilting arm fixing screws
M4×12 mm (4 screws supplied)

❸ Camera mounting plate
This is used to mount the convertible camera.

❹ Guide screws
These are used to maintain the camera's balance and anchor the camera mounting plate.

❺ Guide pin
This determines the mounting direction of the camera.

❻ Guide roller
This serves as the fulcrum for maintaining the camera's balance.

❼ Camera mounting screws (U1/4˝-20 UNC)
These are used to mount the camera and anchor it securely.

❽ Head
This rotates in the horizontal direction.

❾ Tally lamps (×2)
These light (red) in response to the selection signals.

❿ Head connector panel
This is used for connection with the camera and lens.

⓫ Base

⓬ Pan-tilt head mounting holes
These four holes are used for mounting the pan-tilt head.

⓭ Safety wire mounting hole
This is used when attaching a wire to prevent the pan-tilt head from dropping.

⓮ Base connector panel
This is used for connection with a controller, multi-port hub or AC adapter for the pan-tilt head.

⓯ Blank side panel
This is used when changing the mounting position of the base connector panel.

⓰ Blank bottom panel
This is used when changing the mounting position of the base connector panel.

Installation
(The installation work must be performed by your dealer without fail.)

■Assembling the pan-tilt head
Be absolutely sure to hold the pan-tilt head by the base when handling it.

● **Attaching the tilting arm**
Use the tilting arm fixing screws to attach the tilting arm. The way in which the arm is mounted differs depending on the direction in which it is installed. (See the figure below.)

Suspended installation   **Stand-alone installation**
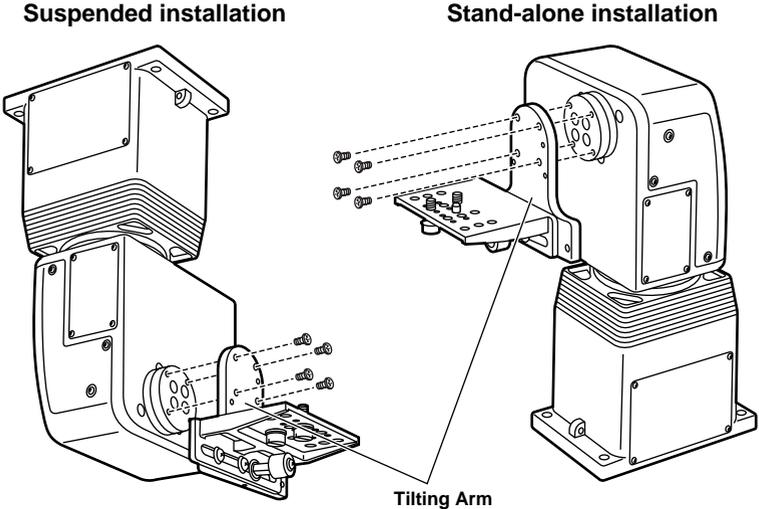
Tilting Arm

<Note>
Do not use other than the supplied tilting arm fixing screws to fasten the tilting arm.

Installation
(The installation work must be performed by your dealer without fail.)

■Setting the installation direction selector switch and landing characteristics

Set the switches as follows to perform a stand-alone installation and/or to select the landing characteristics. (Suspended installation and soft landing are the factory settings.)

1. Remove the four head cover screws, and remove the cover slowly. (Take care not to disturb the tally LED lamp wiring connections when removing the cover.)

2. Set the SW2, SW3 and SW4 switches on the front printed circuit board as follows.
   For suspended installation:
   Set SW3 and SW4 to their left-side positions (HANGING). (Factory setting)
   For stand-alone installation:
   Set SW3 and SW4 to their right-side positions (TOP).
   For a soft landing:
   Set SW2 switch No.4 to its top (ON) position. (Factory setting)
   For a precise landing:
   Set SW2 switch No.4 to its bottom (OFF) position.

3. Upon completion of the settings, return the rotary head cover to its original position, and secure it with the screws (while taking care not to pinch the wires).

<Notes>
- Before setting the switches, make absolutely sure that the power of the AC adapter which is to be connected to the pan-tilt head is set to OFF.
- The landing characteristics are not changed simply by selecting the switch positions. They are changed only after the power is turned off and back on again after the switches have been set.
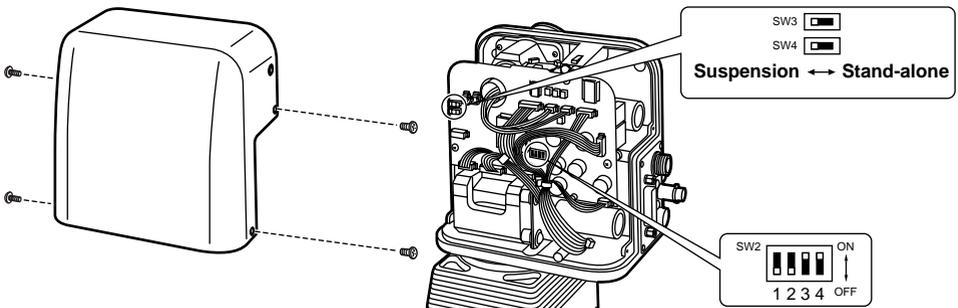
SW3
SW4
Suspension ←→ Stand-alone

SW2
1 2 3 4
ON
OFF

Installation
(The installation work must be performed by your dealer without fail.)

■Setting the cable compensation circuit

A maximum length of up to 3,280 feet (1,000 meters) is allowed for the cable between each pan-tilt head and the multi-function controller (AW-RP605) (when BELDEN 8281 coaxial cables are used). However, if the cable length is to exceed 1,640 feet (500 meters), set the cable compensation circuit to ON by following the steps below.
(Factory setting: OFF)

1. Remove the four screws of the base connector panel, and pull the panel out toward you.
2. Set the COMP switch on the COMP printed circuit board on the back side of the panel to ON.
3. Return the panel to its original position, and secure it using the screws.

COMP switch

COMP printed circuit board
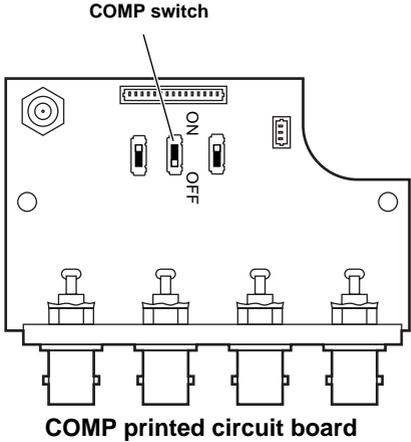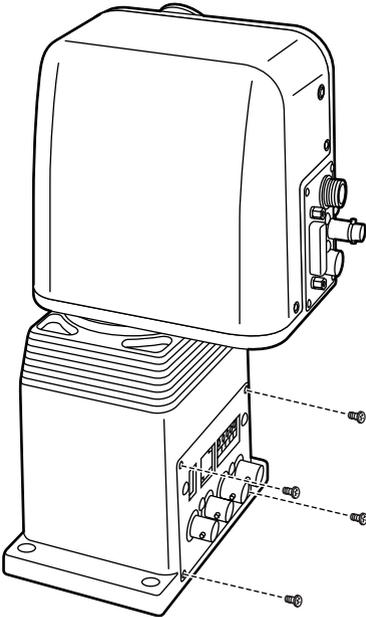
Installation
(The installation work must be performed by your dealer without fail.)

■Moving the mounting position of the base connector panel
If necessary, the mounting position of the base connector panel can be moved. (When the pan-tilt head is shipped, it is positioned for suspended installation.)

1. Remove the blank panel at the position where the base connector panel is to be mounted.
2. Remove the screws of the base connector panel, and pull out the panel toward you.
3. Disconnect all the connectors (×6) of the printed circuit board on the back of the panel.
4. Move the base connector panel to the new position, and connect the connectors of the printed circuit board as before.
5. Secure the base connector panel and blank panel using their respective screws.

■Changing the mounting direction of the base connector panel
If necessary, the mounting direction of the base connector panel can be rotated by 180 degrees.

1. Remove the screws of the base connector panel, and pull the panel out toward you.
2. Turn the panel by 180 degrees, and place it back in position.
3. Secure the panel with the screws.

Blank panel

Base connector panel
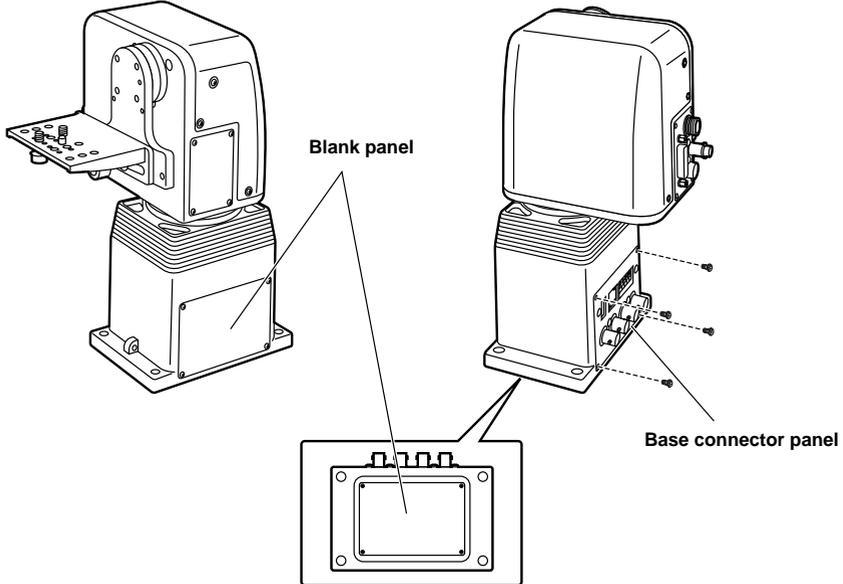
<Note>
The mounting position and direction of the head connector panel cannot be changed.

Installation
(The installation work must be performed by your dealer without fail.)

∎Installing the pan-tilt head

Be absolutely sure to follow the instructions below when installing the pan-tilt head. Failure to do so may cause the pan-tilt head to slip out of position or fall.

- Make sure that the installation of the pan-tilt head has been completed before mounting the camera onto it.
- To mount the pan-tilt head, use the four mounting holes and secure it firmly in place.
- Have M6 hexagonal bolts ready as these must be used for mounting the pan-tilt head.
- The hexagonal bolts must be long enough to meet the requirement of "mounting material thickness (t) plus 25 mm or longer."
- Use flat washers, spring washers and hexagonal nuts with the hexagonal bolts, as shown in the figure.
- Use a wrench that fits the size of hexagonal bolt heads to tighten the hexagonal bolts.
- For suspended installation, pass a wire through the safety wire mounting hole, and fasten it securely to the ceiling or other structurally sound object.
- Have a wire ready which is strong enough to bear the weight of the entire pan-tilt head system (pan-tilt head, camera, lens and cable).
- Install the pan-tilt head so as to ensure that none of the components mounted on the pan-tilt head or cables will come into contact with any objects in the vicinity when the pan-tilt head rotates.

<Note>

When installing the pan-tilt head, refrain from forcibly turning the head or tilting arm by hand.
Doing so may cause the unit to malfunction.
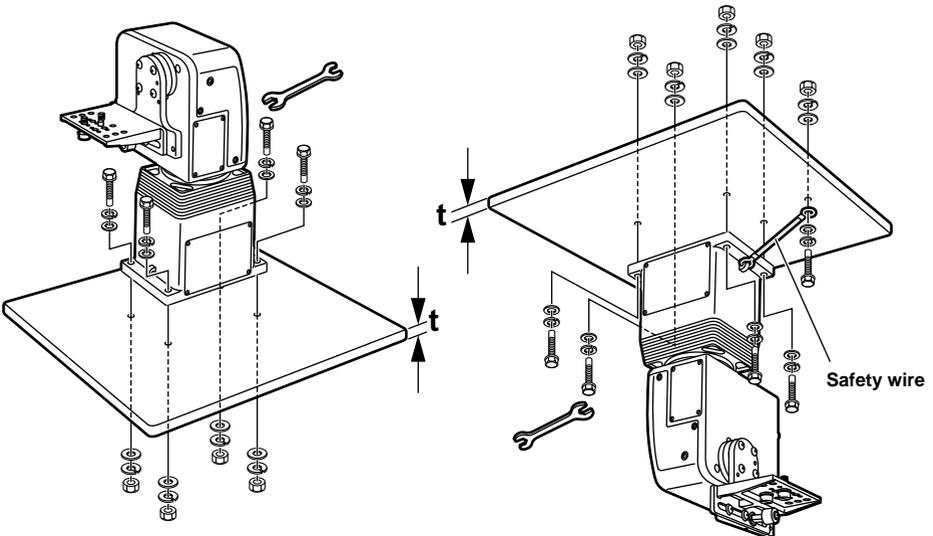
Safety wire

Installation
(The installation work must be performed by your dealer without fail.)

■**Mounting the camera**

The pan-tilt head's camera mounting section has a mechanism for maintaining the camera's balance that moves the camera mounting plate using a guide roller as a fulcrum.

1. Change the position of guide pin Ⓐ and/or the camera mounting screws to suit the camera and lens to be used before mounting the camera.
2. Adjust the balance by loosening the guide screws and moving the camera mounting plate.
3. Upon confirming the position where the balance is maintained, firmly tighten the guide screws. If the balance cannot be maintained, change the position of guide pin Ⓑ or the positions of the guide screws, and adjust the balance again.

<Note>
The guide roller is fixed in place. Do not remove the guide roller screw.
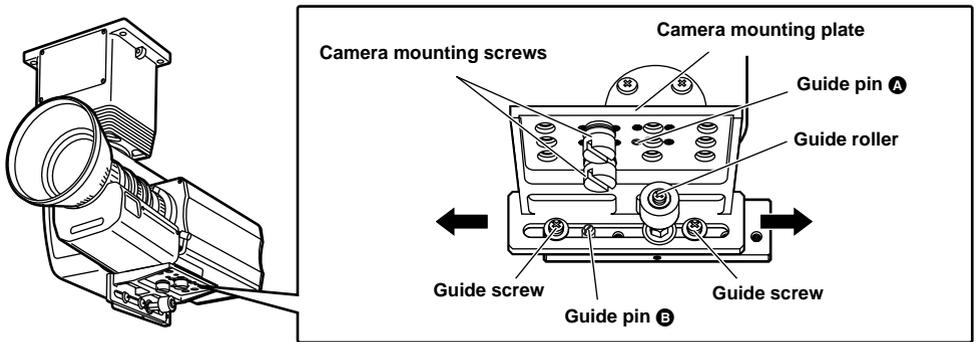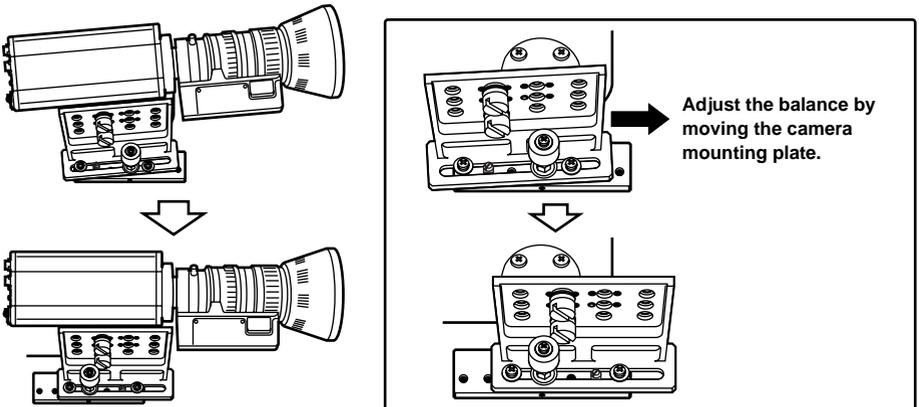
<Mounting example 1>

Adjust the balance by moving the camera mounting plate.

Installation
(The installation work must be performed by your dealer without fail.)

<Mounting example 2>

Adjust the balance by moving the camera mounting plate.

<Recommended lenses>
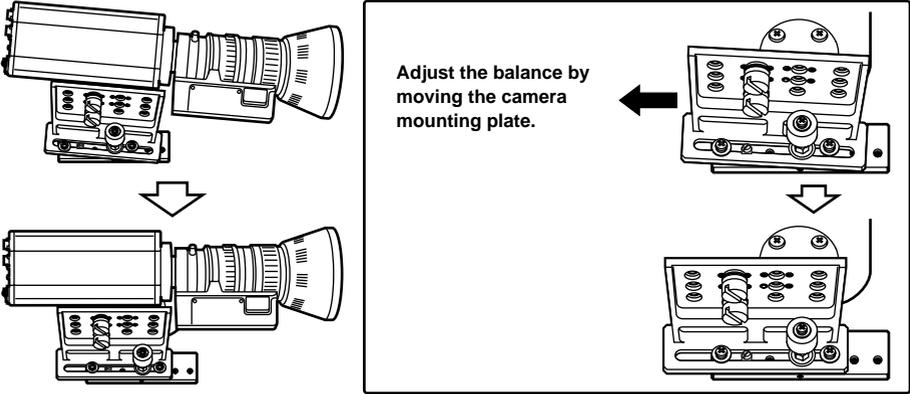
Camera	Lens
AW-E300	AW-LZ14MD55
AW-E600	AW-S14×BMD
AW-E800A	AW-LZ17MD9

Installation
(The installation work must be performed by your dealer without fail.)

● **Attaching the chain**
1. Attach one end of the chain to the pan-tilt head using a chain attachment screw (M4×8 mm: with flat washer/spring washer).

2. Position the other end of the chain over the screw hole on the top of the camera and attach it using a chain attachment screw (M4×6 mm: with flat washer/spring washer).

<Notes>
● Be sure to tighten all screws firmly with a screwdriver or similar tool.
● When the hole on the camera is M2.6, attach the chain with the M2.6×6 mm (with flat washer/spring washer) chain attachment screw.
● When using the AW-E800A camera, the mounting spacer must be attached to the top panel of the camera before attaching the chain. Position the end of the chain over the hole on the mounting spacer and attach it using a chain attachment screw (M4×6 mm: with flat washer/spring washer).
Be sure to tighten the mounting spacer and all screws firmly with a screwdriver or similar tool.

This chain is for use with the AW-E300, AW-E600 and AW-E800A convertible cameras. It cannot be used with any other camera.
When attaching any other camera to the pan-tilt head, carefully check the pan-tilt head operation and that appropriate measures have been taken to ensure the camera does not fall.

Chain attachment screw
M4×6 mm or M2.6×6 mm:
with flat washer/spring washer

Chain

Chain attachment screw
M4×8 mm:
with flat washer/spring washer

Chain

Chain attachment screw
M4×8 mm:
with flat washer/spring washer

With the AW-E800A

Chain attachment screw
M4×6 mm:
with flat washer/spring washer

Chain

Mounting spacer
(included with the AW-E800A)

Chain attachment screw
M4×8 mm:
with flat washer/spring washer

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Installation
(The installation work must be performed by your dealer without fail.)

● **Mounting a camera**

When mounting a camera to the pan-tilt head, take appropriate measures to prevent the camera from falling or being stolen.

1. Place the camera on the camera mounting base and insert the guide pin into the guide hole on the camera.
2. Tighten the 2 camera mounting screws to fix the camera firmly in place.
3. After mounting the camera, check that it is firmly attached and that there is no play.

<Notes>
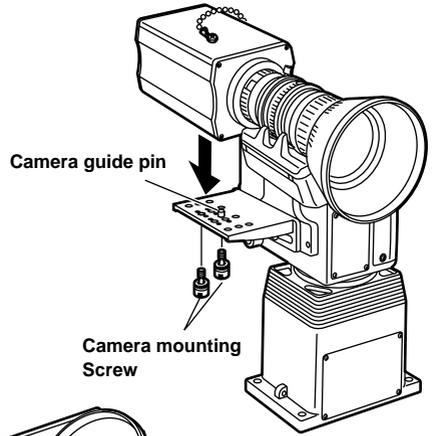
● Be sure to tighten all screws firmly with a screwdriver or similar tool.
● When there is only 1 hole on the camera, remove the 2 camera mounting screws from the camera mounting base, then insert 1 camera mounting screw into the center hole on the camera mounting plate and tighten it to fix the camera in place.

Camera guide pin

Camera mounting Screw

Camera mounting Screw
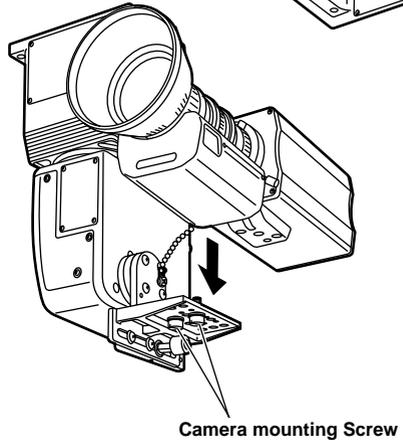
● **Adjusting slack in the chain**

The chain length allows for some degree of slack.

Remove any slack after attaching the camera to the pan-tilt head by twisting the chain around as shown in the figure at right, then firmly tighten the screw to fix it in place.

With the AW-E800A
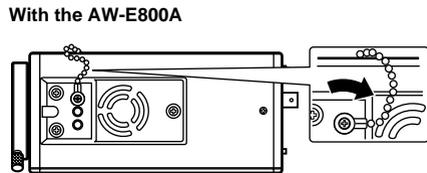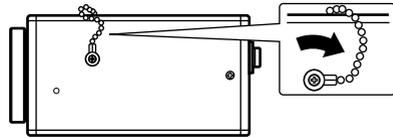
Connections
■Connecting the connector panel

When component signals are to be used as the video signals, the AW-PB302 RGB card (optional accessory) must be installed in the convertible camera.

Convertible camera

Zoom lens

Head connector panel

AC adapter:
AW-PS300

Base connector panel

Multi-Function Controller:
AW-RP605

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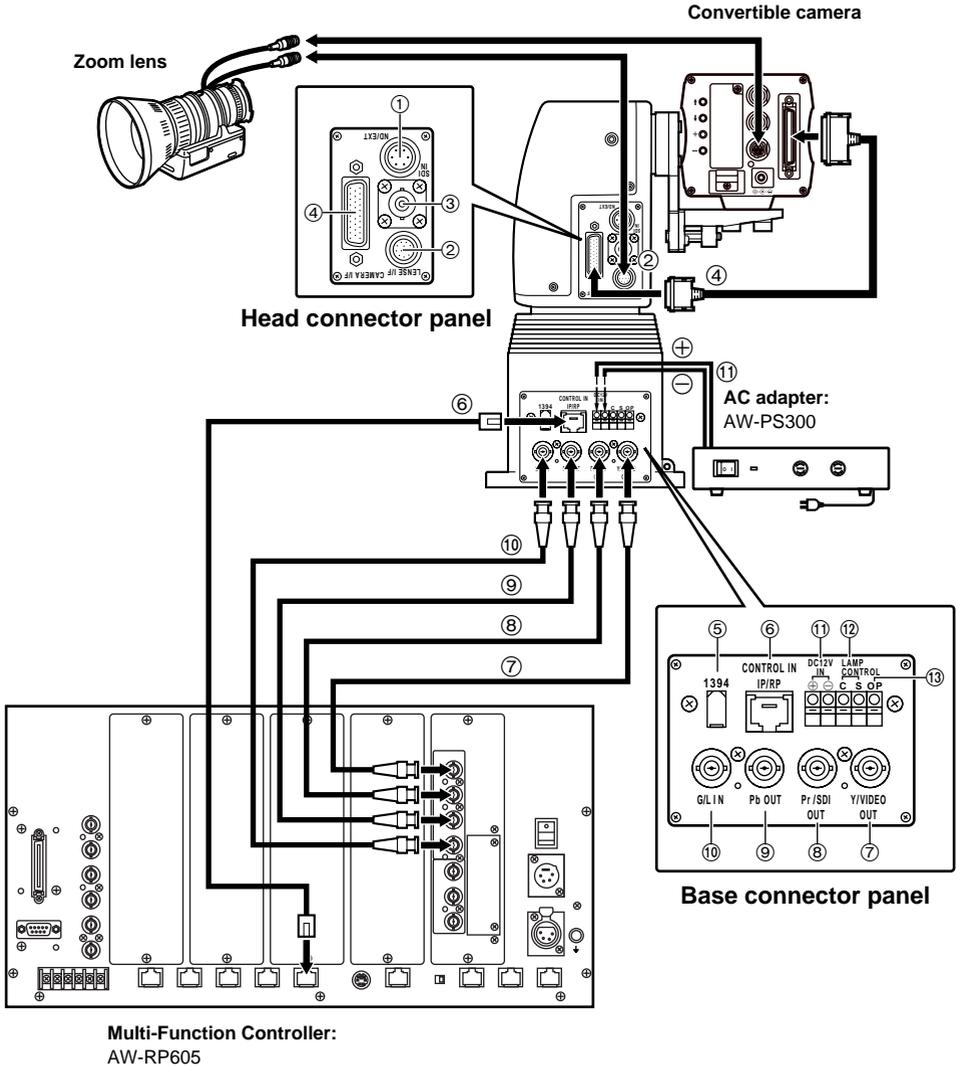
Connections
■**Head connector panel**

The camera and lens control cables are connected to this panel.

①**ND/EXT connector**

This is for controlling the ND filter and lens extender of the power lens unit. Connect it when using a power lens unit equipped with an ND filter and lens extender function.
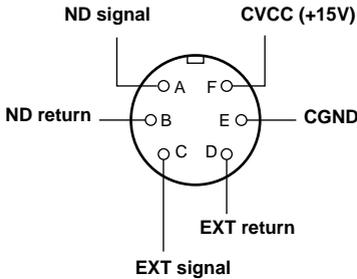
(As viewed from cable end)

②**LENS I/F connector**

This is for controlling the zoom/focus functions of the power lens unit. Connect the remote (zoom/focus) control cable of the power lens unit here.

③**SDI IN connector**

This is for SDI signal input. Using a coaxial cable (BELDEN 8281), connect this with the SDI OUT connector of an SDI card (AW-PB304), etc. installed in the convertible camera.

④**CAMERA I/F connector**

This is for convertible camera control. Connect this to the REMOTE connector on the camera. Use a pan-tilt head cable (optional accessory) suitable for the application for the connecting cable. (See pages 23 to 28.)

Connections

■**Connecting the base connector panel**

5 **1394 connector**

This is for controlling the convertible camera, in which an IEEE 1394 card (AW-PB310), etc. has been installed, and the pan-tilt head.

As the connecting cable, use an IEEE 1394 cable.
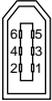
Pin No.	Signal
1	DC 12V
2	GND
3	TPB ∗
4	TPB
5	TPA ∗
6	TPA

6 **CONTROL IN IP/RP connector**

This is for camera/pan-tilt head control signals.

Connect this to the CONTROL OUT TO PAN/TILT HEAD connector on the multi-function controller (AW-RP605) or to a PC, etc. Use a 10BaseT straight cable (UTP category 5) for the connecting cable.

<Note>

To control the camera and pan-tilt head directly from a PC, etc., first convert from RS-232C to RS-422.

7 **Y/VIDEO OUT connector**

This is for camera video signal output.

Connect this to the VIDEO/Y IN connector on the multi-function controller (AW-RP605) or to a monitor, etc.

Video signals will be output from this connector when a convertible camera is used as a standard accessory.

Y signals can be output when an RGB card (AW-PB302) is installed in the convertible camera for use.

Use a coaxial cable (BELDEN 8281) for the connecting cable.

8 **Pr/SDI OUT connector**

This is for camera video signal output.

Connect this to the Pr IN connector on the multi-function controller (AW-RP605), etc. or to a monitor, etc.

Pr signals can be output when an RGB card (AW-PB302), etc. is installed in the convertible camera for use.

Alternatively, SDI signals can be output when an SDI card (AW-PB304), etc. is installed in the convertible camera for use.

Use a coaxial cable (BELDEN 8281) for the connecting cable.

9 **Pb OUT connector**

This is for camera video signal output.

Connect this to the Pb IN connector on the multi-function controller (AW-RP605, etc.) or to a monitor, etc.

Install an RGB card (AW-PB302), etc. in the convertible camera for use.

Use a coaxial cable (BELDEN 8281) for the connecting cable.

10 **G/L IN connector**

This is for genlock signal input.

Connect this to the G/L OUT connector on the multi-function controller (AW-RP605), etc.

Use a coaxial cable (BELDEN 8281) for the connecting cable.

Connections

■Connecting the AC adapter for use with the pan-tilt head

Connect the pan-tilt head with the AW-PS300 AC adapter designed for use with the pan-tilt head.

Approx. 1 cm
It is recommended that the tip be soldered.

AC adapter for use with the pan-tilt head:
AW-PS300
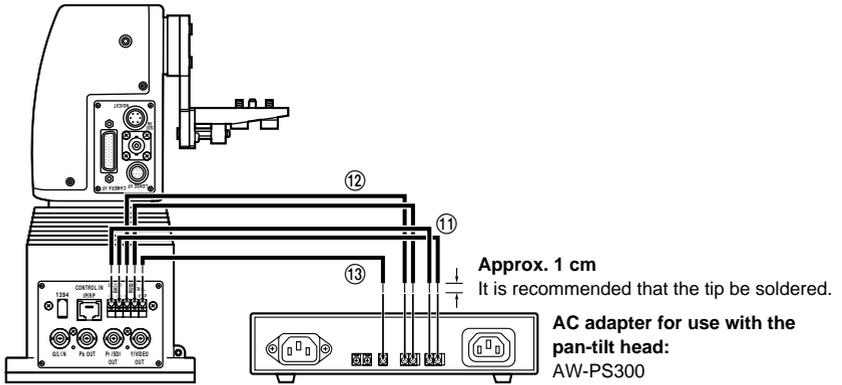
⑪ **DC 12V IN terminal board**
Connect this to the DC 15V OUT connector on the AC adapter (AW-PS300). (The voltage output from the AC adapter is set to 15V: this takes into consideration the voltage drops due to the possible extension of the DC cable between the pan-tilt head and AC adapter.)

Make sure that the positive $\oplus$ and negative $\ominus$ ends of the wires are connected to the same signs on the connector.

Use a cable with a nominal cross section of 1.25 mm^2 or more which complies with the Electrical Appliance and Material Control Law for the connection.

⑫ **LAMP CONTROL terminal board**
Connect this only when the power of a halogen lamp is to be supplied from the LAMP AC OUT connector on the AC adapter (AW-PS300).

This connector is connected to LAMP CONTROL on the AC adapter for the pan-tilt head.

The symbols C and S on the wires must match the same symbols on the connector.

Use a cable with a nominal cross section of 0.3 mm^2 or more that complies with the Electrical Appliance and Material Control Law for the connection.

⑬ **OP terminal board**
Connect this only when the OP SW CONTROL OUT connector on the AC adapter (AW-PS300) is to be used.

Connect it to the OPTION SW CONTROL IN connector on the AC adapter (AW-PS300).

Use a cable with a nominal cross section of 0.3 mm^2 or more that complies with the Electrical Appliance and Material Control Law for the connection.

Connections
■Setting the printed circuit board switches

The switches on the COMP and CONNECTOR printed circuit boards must be set to correspond to the signals to be transmitted and components to be connected to the pan-tilt head.
(When shipped, the analog settings are supported.)

● **Analog settings**
SDI/PR switch	: Pr
WEB/1394 switch	: 1394
WEB/RP422 switch	: RP422

● **SDI settings**
SDI/PR switch	: SDI
WEB/1394 switch	: 1394
WEB/RP422 switch	: RP422

● **WEB settings**
SDI/PR switch	: Pr
WEB/1394 switch	: WEB
WEB/RP422 switch	: WEB

COMP switch
Use this at the ON position if the length of the cable exceeds 1,640 feet (500 meters).

SDI/PR switch

RET/PB switch
Do not change the setting of this switch – use it at the PB position.

COMP printed circuit board

WEB/1394 switch

WEB/RP422 switch

CONNECTOR printed circuit board

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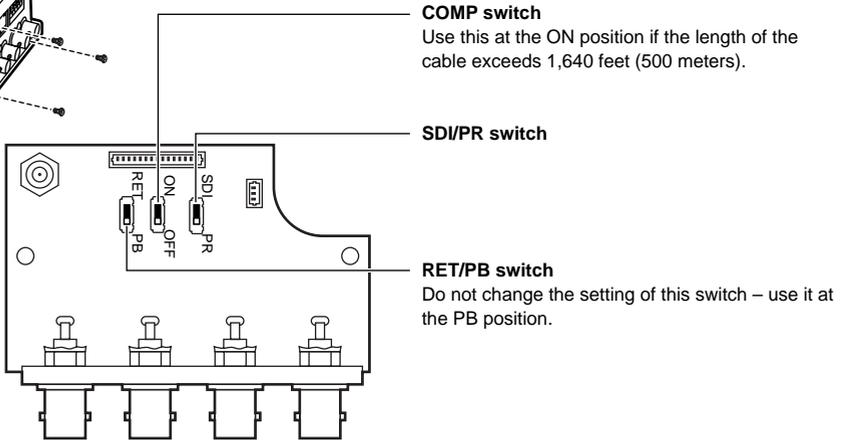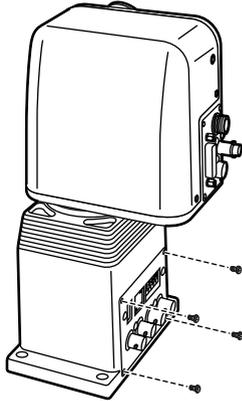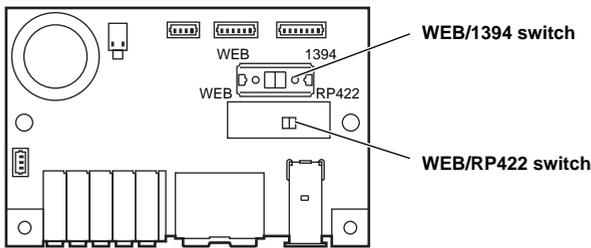
Examples of connections
1. When controlling the camera and pan-tilt head using the AW-RP605 multi-function controller and transmitting composite signals

Printed circuit board switches:
Analog settings

Pan-tilt head cable:
AW-CA50T29

Genlock signals must be supplied when more than one camera and pan-tilt head are to be used.

Coaxial cables:
BELDEN 8281, max. 3,280 feet (1,000 meters)

Multi-Function Controller:
AW-RP605

Y/VIDEO OUT

G/L IN

CONTRTOL IN IP/RP

VIDEO/Y IN

G/L OUT

VIDEO/Y OUT

10BASET straight cable:
UTP category 5,
max. 3,280 feet (1,000 meters)

REMOTE

Cable with a nominal cross section of 1.25 mm² or more
max. 98.4 feet (30 meters)

CONTROL OUT TO PAN/TILT HEAD

Color monitor

AC adapter:
AW-PS300

VIDEO IN

Coaxial cable:
BELDEN 8281

Personal computer
(Windows)
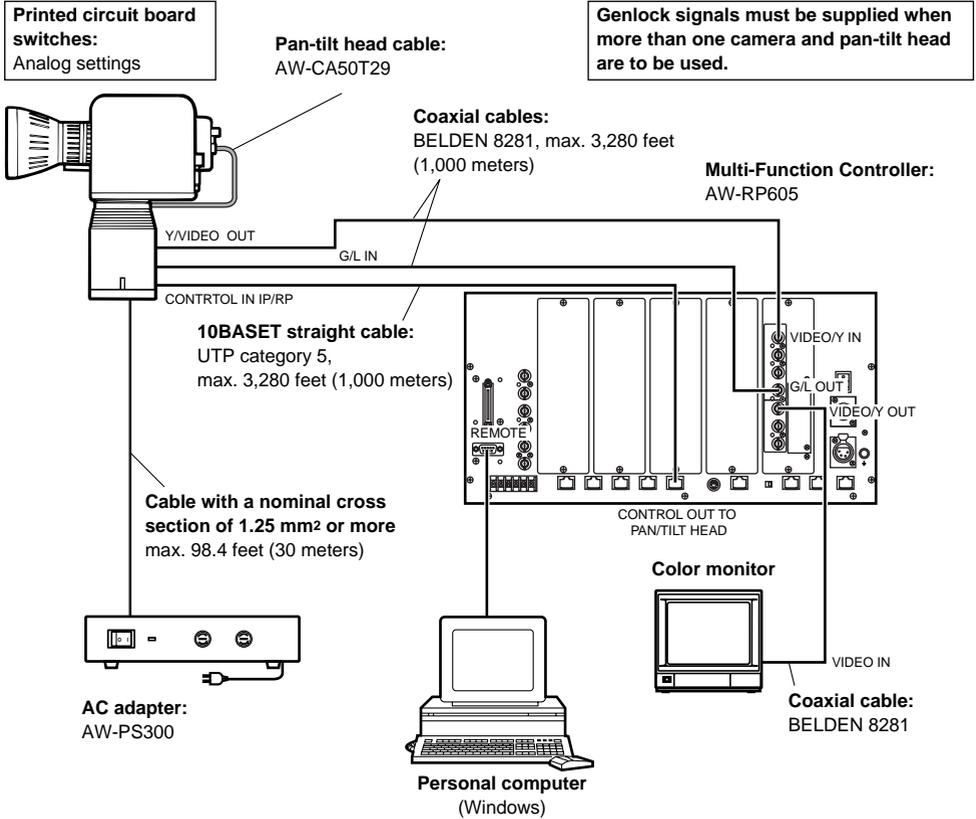
- ● Use the camera/pan-tilt head connecting cable (AW-CA50**T29**) to connect the pan-tilt head with the convertible camera.
- ● Set the printed circuit board switches to the analog settings.
- ● Use a coaxial cable (BELDEN 8281) to connect the Y/VIDEO OUT connector on the pan-tilt head with the VIDEO/Y IN connector on the controller.
- ● Use a 10BaseT straight cable (UTP category 5) to connect the CONTROL IN IP/RP connector on the pan-tilt head with the CONTROL OUT TO PAN/TILT HEAD connector on the controller.
- ● Use a coaxial cable (BELDEN 8281) to connect the VIDEO/Y OUT connector on the controller with the VIDEO input connector on the color monitor.
- ● Check that the pan-tilt head and camera can be controlled using the controller.

Examples of connections

2. When controlling the camera and pan-tilt head using the AW-RP605 multi-function controller and transmitting component signals

Printed circuit board switches: Analog settings

Pan-tilt head cable: AW-CA50C29

Genlock signals must be supplied when more than one camera and pan-tilt head are to be used.

Coaxial cables: BELDEN 8281, max. 3,280 feet (1,000 meters)

Multi-Function Controller: AW-RP605

Y/VIDEO OUT
Pr/SDI OUT
Pb OUT

G/L IN

CONTROL IN IP/RP

VIDEO/Y IN
Pr IN
Pb IN
G/L OUT
VIDEO/Y OUT
Pr OUT
Pb OUT

10BaseT straight cable: UTP category 5, max. 3,280 feet (1,000 meters)

REMOTE

Cable with a nominal cross section of 1.25 mm2 or more max. 98.4 feet (30 meters)

CONTROL OUT TO PAN/TILT HEAD

Color monitor

Y IN
Pr IN
Pb IN

AC adapter: AW-PS300

Coaxial cables: BELDEN 8281

Personal computer (Windows)

- Use the camera/pan-tilt head connecting cable (AW-CA50**C29**) to connect the pan-tilt head with the convertible camera in which an RGB card (AW-PB302), etc. has been installed.
- Set the printed circuit board switches to the analog settings.
- Use coaxial cables (BELDEN 8281) to connect the Y/VIDEO OUT, Pr/SDI OUT and Pb OUT connectors on the pan-tilt head with the VIDEO/Y IN, Pr IN and Pb IN connectors on the controller, respectively.
- Use a 10BaseT straight cable (UTP category 5) to connect the CONTROL IN IP/RP connector on the pan-tilt head with the CONTROL OUT TO PAN/TILT HEAD connector on the controller.
- Use coaxial cables (BELDEN 8281) to connect the VIDEO/Y OUT, Pr OUT and Pb OUT connectors on the controller with the respective component input connectors on the color monitor.
- Check that the pan-tilt head and camera can be controlled using the controller.

Examples of connections
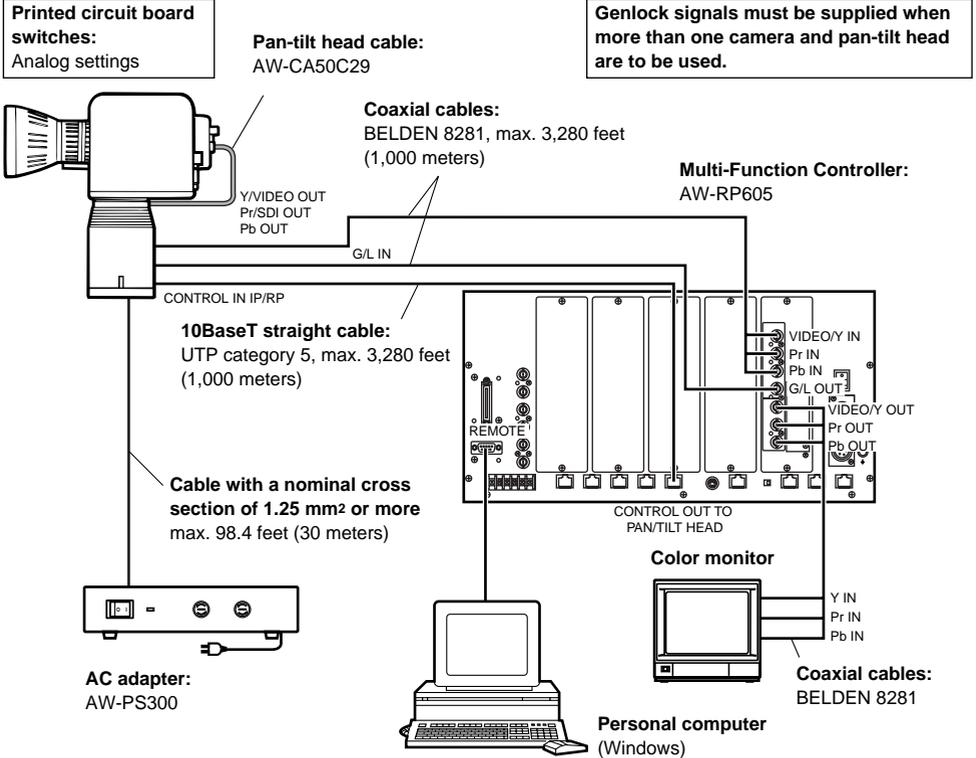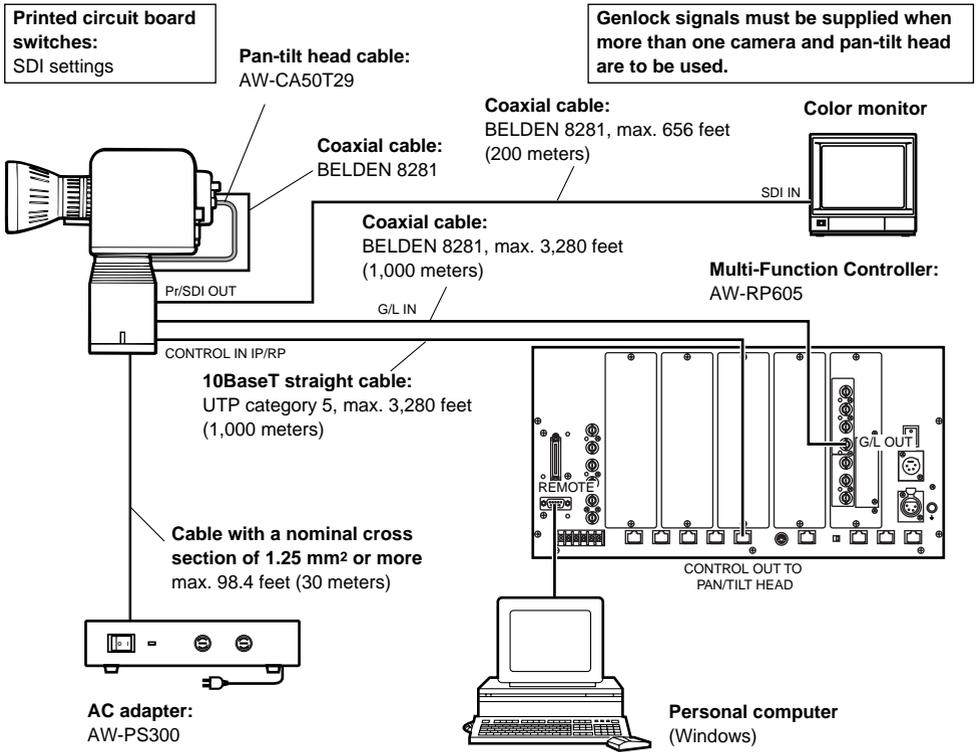## 3. When controlling the camera and pan-tilt head using the AW-RP605 multi-function controller and transmitting SDI signals

Printed circuit board switches:
SDI settings

Pan-tilt head cable:
AW-CA50T29

Coaxial cable:
BELDEN 8281

Coaxial cable:
BELDEN 8281, max. 656 feet
(200 meters)

Genlock signals must be supplied when more than one camera and pan-tilt head are to be used.

Color monitor

SDI IN

Pr/SDI OUT

Coaxial cable:
BELDEN 8281, max. 3,280 feet
(1,000 meters)

G/L IN

Multi-Function Controller:
AW-RP605

CONTROL IN IP/RP

10BaseT straight cable:
UTP category 5, max. 3,280 feet
(1,000 meters)

G/L OUT

REMOTE

Cable with a nominal cross section of 1.25 mm² or more
max. 98.4 feet (30 meters)

CONTROL OUT TO
PAN/TILT HEAD

AC adapter:
AW-PS300

Personal computer
(Windows)

- Use the camera/pan-tilt head connecting cable (AW-CA50**T29**) to connect the pan-tilt head with the convertible camera in which an SDI card (AW-PB304), etc. has been installed.
- Set the printed circuit board switches to the SDI settings.
- Use a coaxial cable (BELDEN 8281) to connect the SDI OUT connector on the convertible camera with the SDI IN connector on the pan-tilt head. Select the coaxial cable of a length at which the pan-tilt head will operate smoothly.
- Use a coaxial cable (BELDEN 8281) to connect the Pr/SDI OUT connector on the pan-tilt head with the SDI IN connector on the color monitor.
- Use a 10BaseT straight cable (UTP category 5) to connect the CONTROL IN IP/RP connector on the pan-tilt head with the CONTROL OUT TO PAN/TILT HEAD connector on the controller.
- Check that the pan-tilt head and camera can be controlled using the controller.

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Examples of connections

4. When connecting a pan-tilt head through a network and controlling the camera and pan-tilt head using a personal computer

Printed circuit board switches: WEB settings

Pan-tilt head cable: AW-CA50F29

10BaseT straight cable: UTP category 5, max. 328 feet (100 meters)

HUB

CONTROL IN IP/RP

Cable with a nominal cross section of 1.25 mm² or more max. 98.4 feet (30 meters)

Personal computer (Windows)

AC adapter: AW-PS300

10BaseT straight cable: UTP category 5, max. 328 feet (100 meters)
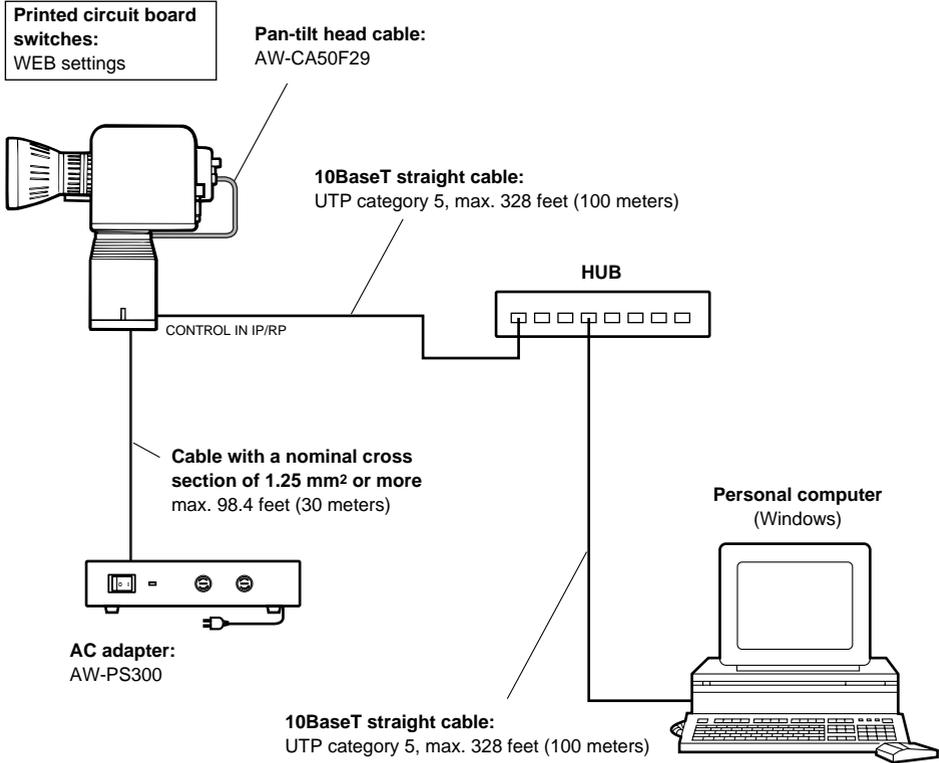
- Use the camera/pan-tilt head connecting cable (AW-CA50**F29**) to connect the pan-tilt head with the convertible camera in which a WEB card (AW-PB309), etc. has been installed.
- Set the printed circuit board switches to the WEB settings.
- Use a 10BaseT straight cable (UTP category 5) to connect the personal computer (Windows) and convertible camera via a hub.
- Install browser software (Netscape or Internet Explorer) in the personal computer (Windows).
- Use the browser software to input the IP address which was set on the WEB card, and check that the pan-tilt head and camera can be controlled using the personal computer.

Examples of connections
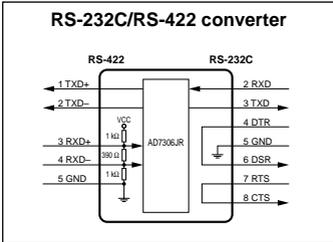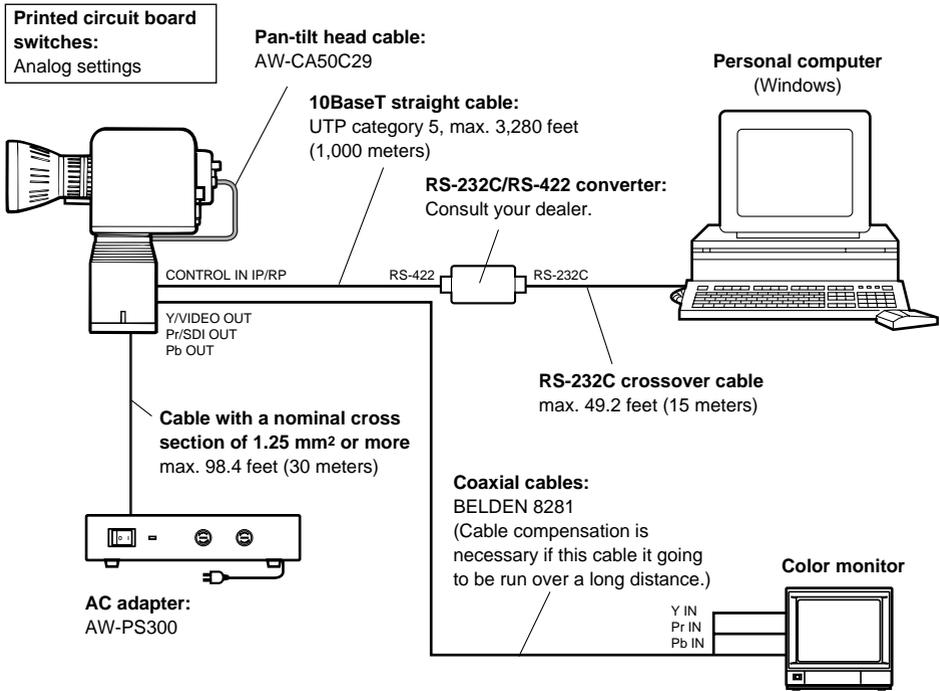## 5. When controlling the camera and pan-tilt head using a personal computer, etc. and transmitting composite signals

Printed circuit board switches:
Analog settings

Pan-tilt head cable:
AW-CA50T29

10BaseT straight cable:
UTP category 5, max. 3,280 feet (1,000 meters)

Personal computer
(Windows)

RS-232C/RS-422 converter:
Consult your dealer.

CONTROL IN IP/RP

RS-422

RS-232C

Y/VIDEO OUT

Cable with a nominal cross section of 1.25 mm² or more
max. 98.4 feet (30 meters)

RS-232C crossover cable
max. 49.2 feet (15 meters)

Coaxial cable:
BELDEN 8281
(Cable compensation is necessary if this cable it going to be run over a long distance.)

Color monitor

VIDEO IN

AC adapter:
AW-PS300

RS-232C/RS-422 converter

RS-422   **RS-232C**

1 TXD+		2 RXD
2 TXD–		3 TXD
	VCC	4 DTR
3 RXD+	1 kΩ	5 GND
4 RXD–	390 Ω AD7306JR	6 DSR
5 GND	1 kΩ	7 RTS
		8 CTS
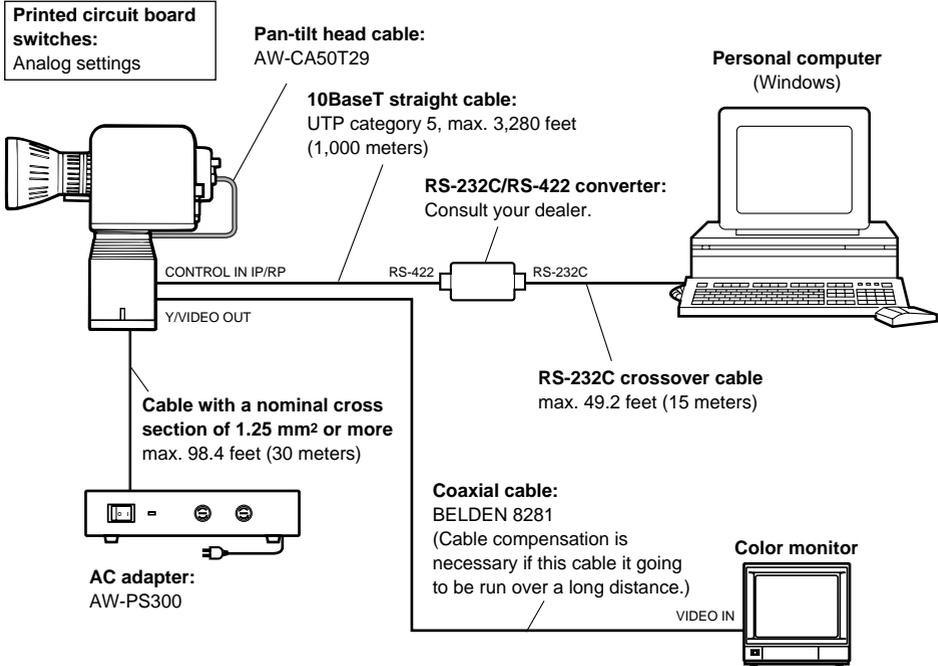
- Use the camera/pan-tilt head connecting cable (AW-CA50**T29**) to connect the pan-tilt head with the convertible camera.
- Set the printed circuit board switches to the analog settings.
- Use a coaxial cable (BELDEN 8281) to connect the Y/VIDEO OUT connector on the pan-tilt head with the VIDEO input connector on the color monitor.
- Connect the CONTROL IN IP/RP connector on the pan-tilt head to the RS-232C connector on the personal computer (Windows) via an RS-232C/RS-422 converter. (Consult your dealer)
- Check that the pan-tilt head and camera can be controlled using the personal computer.

Examples of connections

6. When controlling the camera and pan-tilt head using a personal computer, etc. and transmitting component signals

Printed circuit board switches:
Analog settings

Pan-tilt head cable:
AW-CA50C29

10BaseT straight cable:
UTP category 5, max. 3,280 feet
(1,000 meters)

Personal computer
(Windows)

RS-232C/RS-422 converter:
Consult your dealer.

CONTROL IN IP/RP   RS-422   RS-232C

Y/VIDEO OUT
Pr/SDI OUT
Pb OUT

RS-232C crossover cable
max. 49.2 feet (15 meters)

Cable with a nominal cross section of 1.25 mm² or more
max. 98.4 feet (30 meters)

Coaxial cables:
BELDEN 8281
(Cable compensation is
necessary if this cable it going
to be run over a long distance.)

Color monitor

Y IN
Pr IN
Pb IN

AC adapter:
AW-PS300

- Use the camera/pan-tilt head connecting cable (AW-CA50**C29**) to connect the pan-tilt head with the convertible camera.
- Set the printed circuit board switches to the analog settings.
- Use coaxial cables (BELDEN 8281) to connect the Y/VIDEO OUT, Pr/SDI OUT and Pb OUT connectors on the pan-tilt head with the Y IN, Pr IN and Pb IN connectors on the color monitor, respectively.
- Connect the CONTROL IN IP/RP connector on the pan-tilt head to the RS-232C connector on the personal computer (Windows) via an RS-232C/RS-422 converter. (Consult your dealer)
- Check that the pan-tilt head and camera can be controlled using the personal computer.
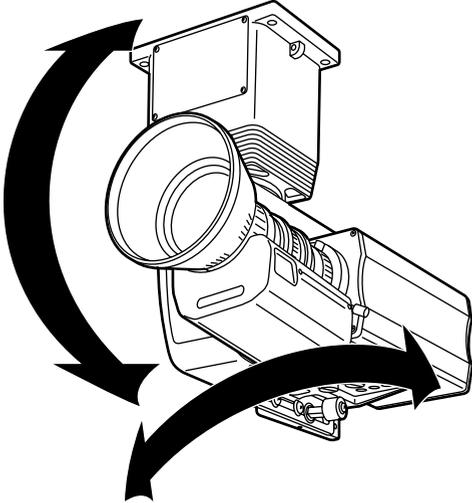
Limiters

Be absolutely sure to set the limiters (travel range) of the pan/tilt head before use.
Depending on where the pan/tilt head system has been installed, obstacles may be present within the travel range with which the camera may come into contact. Contact with any such obstacle by the camera may cause malfunctioning or accidents.
In this case, contact can be prevented by setting the limiters directly before any such obstacle.
The multi-function controller (AW-RP605) is used to set the limiters.
The positions of four limiters—namely, the upper, lower, left-most and right-most limits of the travel range—can be set.
Once they have been set, the positions will not be lost even after the power has been turned off.

Limiters

■Setting the limiters

● **Setting the upper limit position of the travel range**

1. Using the controller, tilt the camera to the position which is to serve as the upper limit.
2. While holding down the OK button on the controller, press TRACING/PRESET MEMORY button 47 ⍓.
3. The setting is completed as soon as the lamp of the TRACING/PRESET MEMORY button 41 [LIMIT ON] comes on.
4. Using the controller once again, check whether the upper limit position has been set correctly.

● **Setting the lower limit position of the travel range**

1. Using the controller, rotate the camera to the position which is to serve as the lower limit.
2. While holding down the OK button on the controller, press TRACING/PRESET MEMORY button 46 ⍗.
3. The setting is completed as soon as the lamp of the TRACING/PRESET MEMORY button 41 [LIMIT ON] comes on.
4. Using the controller once again, check whether the lower limit position has been set correctly.

● **Setting the left-most limit position of the travel range**

1. Using the controller, rotate the camera to the position which is to serve as the left-most limit.
2. While holding down the OK button on the controller, press TRACING/PRESET MEMORY button 44 ←.
3. The setting is completed as soon as the lamp of the TRACING/PRESET MEMORY button 41 [LIMIT ON] comes on.
4. Using the controller once again, check whether the left-most limit position has been set correctly.

● **Setting the right-most limit position of the travel range**

1. Using the controller, rotate the camera to the position which is to serve as the right-most limit.
2. While holding down the OK button on the controller, press TRACING/PRESET MEMORY button 45 →.
3. The setting is completed as soon as the lamp of the TRACING/PRESET MEMORY button 41 [LIMIT ON] comes on.
4. Using the controller once again, check whether the right-most limit position has been set correctly.

Limiters

■Releasing the limiters

A limiter position which has been set can be released by following the steps below.

● **Releasing the upper limit position setting of the travel range**
1. While holding down the OK button on the controller, press TRACING/PRESET MEMORY button 47 ↑.
2. The setting is released when the lamp of the TRACING/PRESET MEMORY button 50 [LIMIT OFF] comes on.

● **Canceling the lower limit position setting of the travel range**
1. While holding down the OK button on the controller, press TRACING/PRESET MEMORY button 46 ↓.
2. The setting is released when the lamp of the TRACING/PRESET MEMORY button 50 [LIMIT OFF] comes on.

● **Canceling the left-most limit position setting of the travel range**
1. While holding down the OK button on the controller, press TRACING/PRESET MEMORY button 44 ←.
2. The setting is released when the lamp of the TRACING/PRESET MEMORY button 50 [LIMIT OFF] comes on.

● **Canceling the right-most limit position setting of the travel range**
1. While holding down the OK button on the controller, press TRACING/PRESET MEMORY button 45 →.
2. The setting is released when the lamp of the TRACING/PRESET MEMORY button 50 [LIMIT OFF] comes on.

■Resetting the limiters

The same series of operations are performed either for setting the limiters or for releasing them: these steps serve to set the limiters once they have been released or release the limiters once they have been set.

To reset the limiters, release the currently established settings, and set the limiters again.

The limiter positions which have been set can be set at different positions by following the steps below.
1. Follow the steps in "Releasing the limiters" to release the settings of the limiter positions which are to be set again.
2. Follow the steps in "Setting the limiters" to set the limiter positions.

Replacement of consumable parts

● **Replacing the battery**
The battery lasts for about 5 years.
The pan-tilt head stores the present positions, limiter positions and other data in its memory. Although this data is retained even after the power has been turned off, it will be lost when the power is turned off once the battery has reached the end of its service life.

Replace the battery once it has lost its effectiveness. (The pan-tilt head uses a CR2032 manganese dioxide-lithium battery.)

Removing the battery
1. Remove the four cover screws, and remove the head cover.
2. Press the battery in the direction shown by the arrow in the figure, and slide it.
3. From this position, lift the battery from the bottom of its arrow area.
4. Once the arrow part of the battery has been removed from the battery holder, pull the battery forward and out to remove it completely.

Installing the new battery
1. With the "+" pole of the new battery turned toward you, insert the end into the battery holder from the direction of the arrow.
2. While pushing the battery in the direction of the arrow, push it right into the holder.
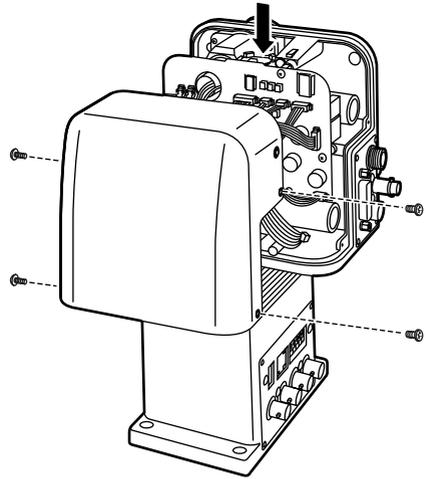
Replacing the motor
Replace the motor if it is not working properly.
● Consult your dealer on how to replace the motor.

Replacing the gear
Replace the gear when its preset stop accuracy has deteriorated.
● Consult your dealer on how to replace the gear.

**The motor and gear are consumable parts.
They must be replaced at regular intervals.**

Specifications

Power supply:
  DC +12 V (connector)
Power consumption:
  DC +12 V 2.5 A
    (camera power included),
  DC +12 V 0.7 A
    (pan-tilt head only)

Genlock input
  Black burst or composite video,
  1 V [p-p]/75 Ω (BNC connector)
Camera video output
  Composite video:
    1 V [p-p]/75 Ω
  Component video:
    Y = 1 V [p-p]/75 Ω
    Pr = 0.7 V [p-p]/75 Ω
    Pb = 0.7 V [p-p]/75 Ω
  SDI
Camera/pan-tilt head control
  RS-422 (8-pin modular jack)
Lamp control
  Control signals (connector)
Option control
  Control signals (connector)
Maximum cable length
  3,280 feet (1,000 meters)
  (when BELDEN 8281 coaxial cable and
  10BaseT straight cable equivalent to
  UTP category 5 are used)
Maximum load capacity
  8.8 lb (4 kg)
Allowable operating temperature
  14°F to 113°F (–10°C to +45°C)
Allowable operating humidity
  Max. 90%
Dimensions (W×H×D)
  5 1/8″×9 5/8″×7 9/16″
  (130×244×192 mm)
Weight
  Approx. 7.7 lb (3.5 kg)
Finish
  AV ivory paint (color approximating
  Munsell 7.9Y 6.8/0.8)

■Functions/performance

Tilt range
  190 degrees (approx. ±95 degrees)
  Tilt range may be subject to restrictions
  depending on the mounted camera
  cable, lens, etc.
Panning range
  300 degrees (approx. ±150 degrees)
Maximum operating speed
  25 degrees/sec. for panning,
  20 degrees/sec. for tilting
Repeatability
  Less than ±3′
Noise level
  Less than NC30

Panasonic